



Nutrition and Dialyse

Focus Dénutrition

Dr Laetitia KOPPE

4 janvier 2021

Service de Néphrologie, Dialyse et Nutrition Rénale-Pr Denis Fouque

Centre Hospitalier Lyon Sud

Laboratoire CarMeN-INSERM U1060

Université Claude Bernard Lyon1

Laetitia.koppe@chu-lyon.fr



Références

KDOQI Nutrition 2020

[https://www.ajkd.org/article/S0272-6386\(20\)30726-5/fulltext](https://www.ajkd.org/article/S0272-6386(20)30726-5/fulltext)



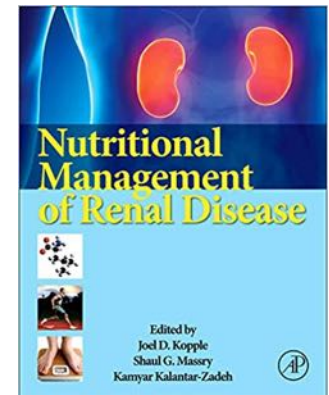
National
Kidney
Foundation®

Nutritional Management of Renal Disease-4th Edition

Editors: Joel Kopple Shaul Massry Kamyar Kalantar-Zadeh Denis Fouque

Published Date: 1st June 2021

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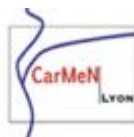


Nutrition Générale = NEJM Fouque 2017

PEW classification : KI Fouque 2008



Hospices Civils de Lyon



Objectifs nutritionnels en dialyse

Dietary Protein Intake, Maintenance Hemodialysis and Peritoneal Dialysis

3.1.2 In adult with **CKD on MHD (1C)** and **PD (OPINION)** who are **metabolically stable**, we recommend prescribing a dietary protein intake of 1.0 -1.2 g /kg ideal body weight per day to maintain a stable nutritional status.

No evidence Vegetal > animal

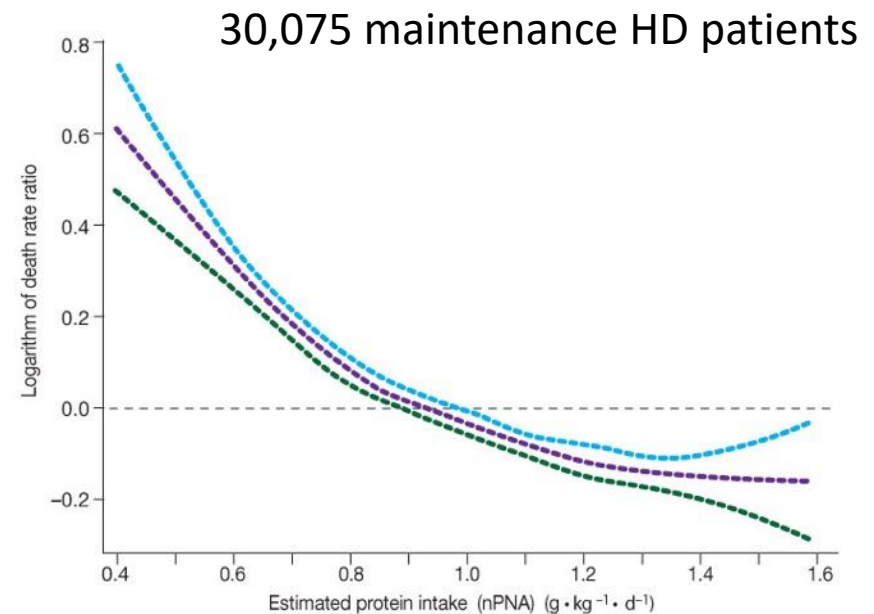
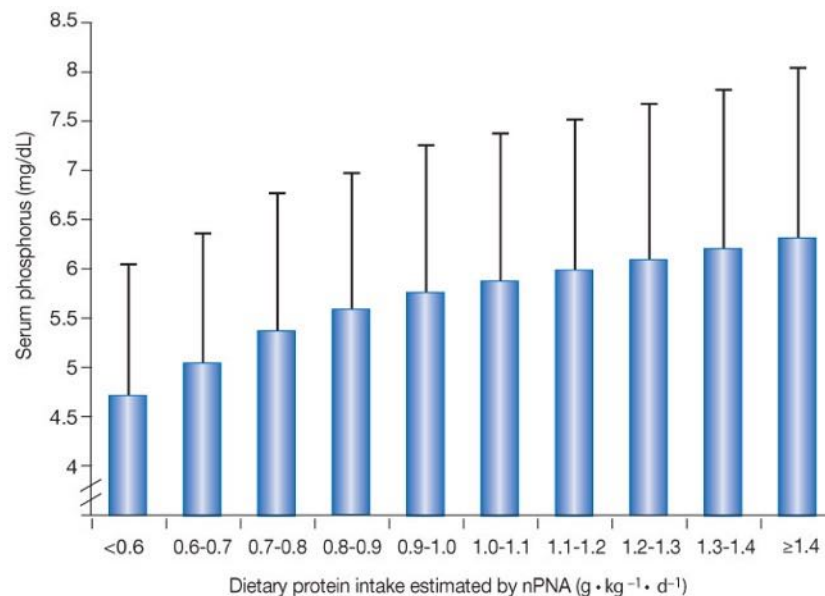
3.0 Statement on Energy Intake

3.0.1 In adults with **CKD 1-5D (1C)** and **post-transplant (OPINION)** who are **metabolically stable**, we recommend prescribing an energy intake of 25-35 kcal/kg ideal body weight per day based on age, gender, level of physical activity, body composition, weight status goals, CKD stage, and concurrent illness or presence of inflammation to maintain normal nutritional status.



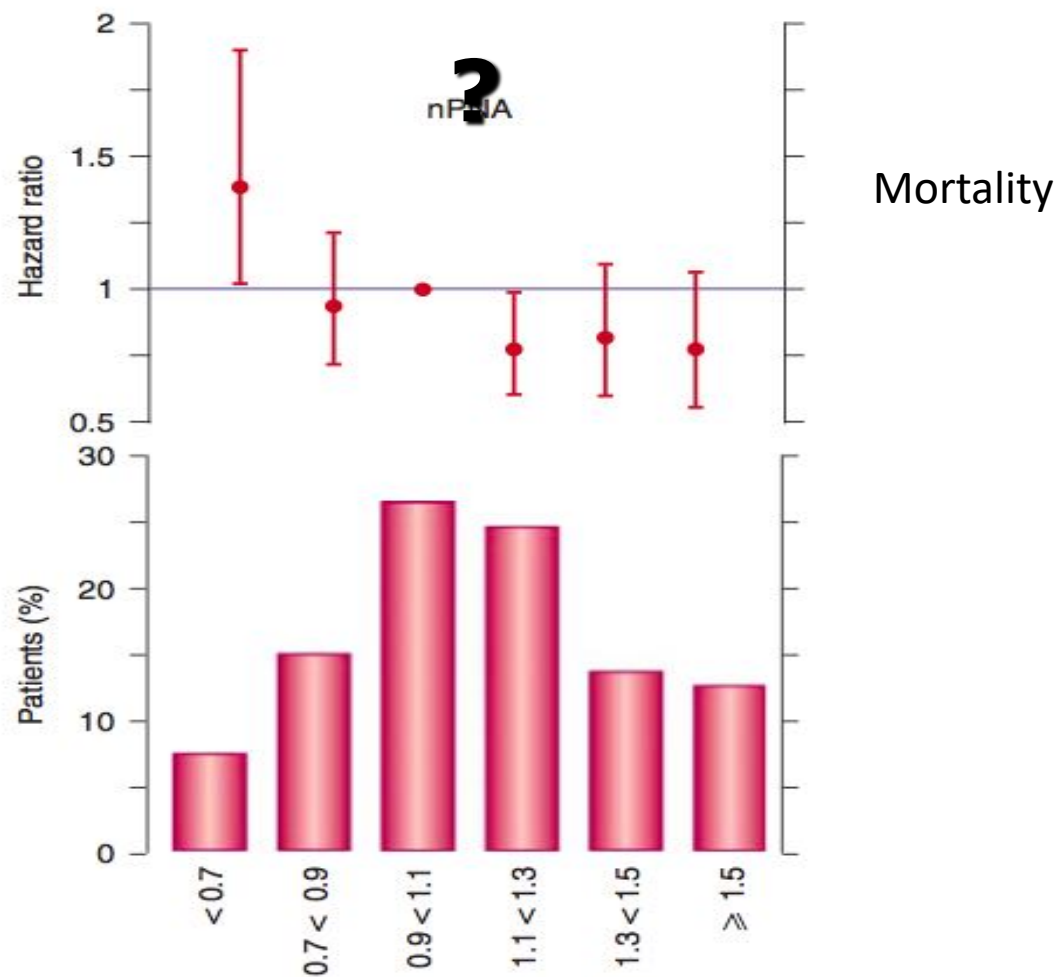
Ne pas réduire les apports protéiques

- En dialyse, apports protéiques bas = augmentation de la mortalité



What is the optimal protein intake

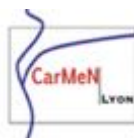
1.1 g prot/kg
1.0 (nPCR)



Observatoire French cohort, 3 000 MHD pts 2007-2010



Hospices Civils de Lyon



Fouque et al, JRN, 2011

Plan-Focalisation sur la dénutrition



Hospices Civils de Lyon



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Plan

1. Epidémiologie
2. Diagnostic
3. Traitement



1-Epidémiologie



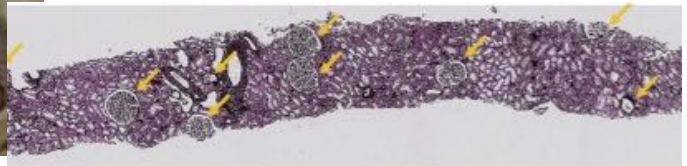
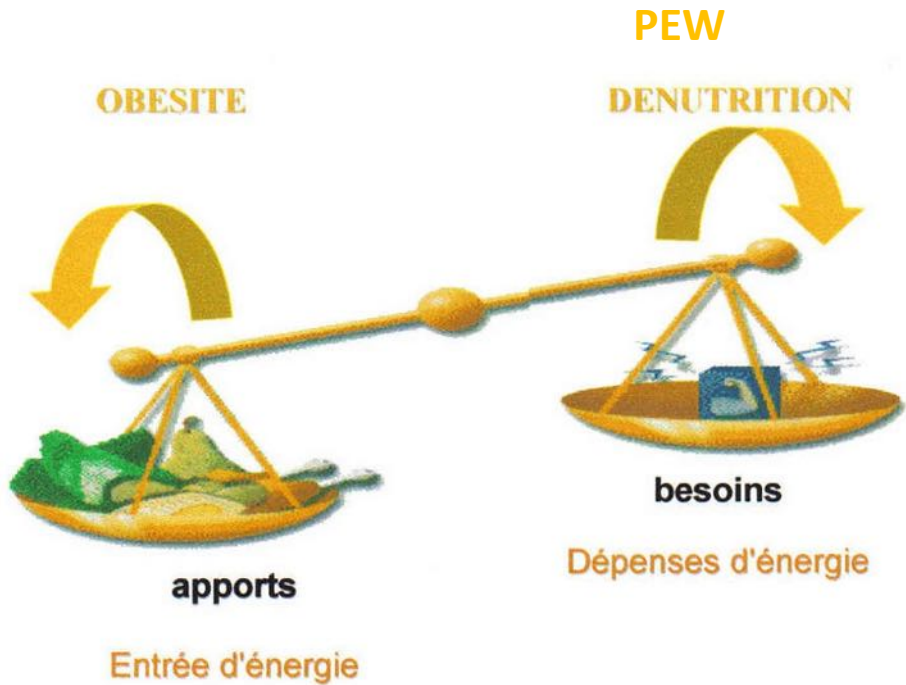
Problématiques: obésité et dénutrition



« Quelle que soit sa pathologie, un patient dénutri voit diminuer ses chances de survie. L'alimenter, c'est le sauver ; le nourrir, c'est le soigner. Pensez-y »

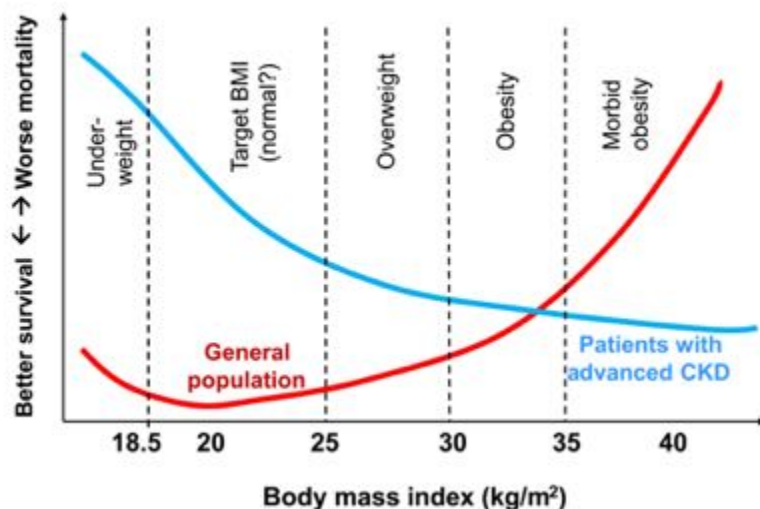
Découvrez le visage caché de la dénutrition

Campagne conçue par le Dr. Veronique Di Costanzo, présidente du Comité de Lutte Alimentation Nutrition de Toulon, mail : veronique.di-costanzo@ch-toulon.fr

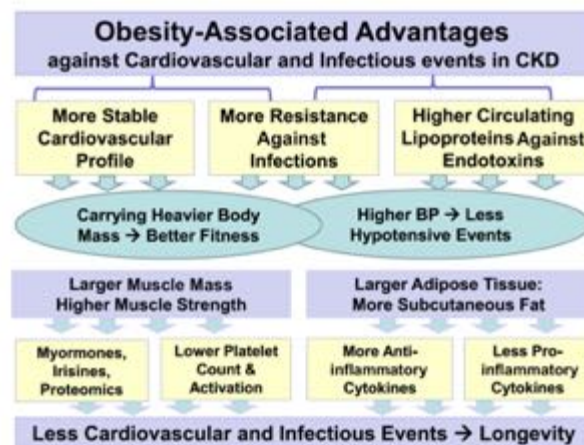


Obésité et IRC: une relation pathologique ou pas ...

- Le **paradoxe** de l'obésité en néphrologie
 - ✓ Augmentation de développer une IRC
 - ✓ Diminution de la mortalité



- Explications en discussion ...
 - ✓ Reflet d'une augmentation de la masse musculaire
 - ✓ Stabilité hémodynamique
 - ✓ Moins de dénutrition protéiques
 - ✓ Analyses statistiques
 - ✓ Protectines par le TA



Problématiques

- Dénutrition problème de santé public en dialyse et MRC terminal

Region	Countries	No. of Studies	Combined Cases	Combined N	Raw % Cases
Part D: Maintenance dialysis studies					
Oceania	Australia	4	92	414	22.2
Eastern Asia	China, Hong Kong, Japan, Korea, Taiwan	31	2197	4634	47.4
Western Asia	Iraq, Israel, Jordan, Lebanon, Saudi Arabia, Turkey	11	883	1866	47.3
Southeastern Asia	Indonesia, Malaysia, Thailand	3	143	271	52.8
Southern Asia	India, Iran	2	357	548	65.1
Northern Africa	Egypt	1	23	100	23.0
Sub-Saharan Africa	Nigeria, South Africa	2	60	101	59.4
Northern America	USA	3	510	995	51.3
Europe	France, Germany, Italy, Poland, Portugal, Romania, Spain, Sweden, UK	20	1100	4765	23.1
Latin America/Caribbean	Brazil, Colombia, Jamaica, Mexico	13	1128	2740	41.2
Total (part D)		90	6493	16434	39.5



Problématiques

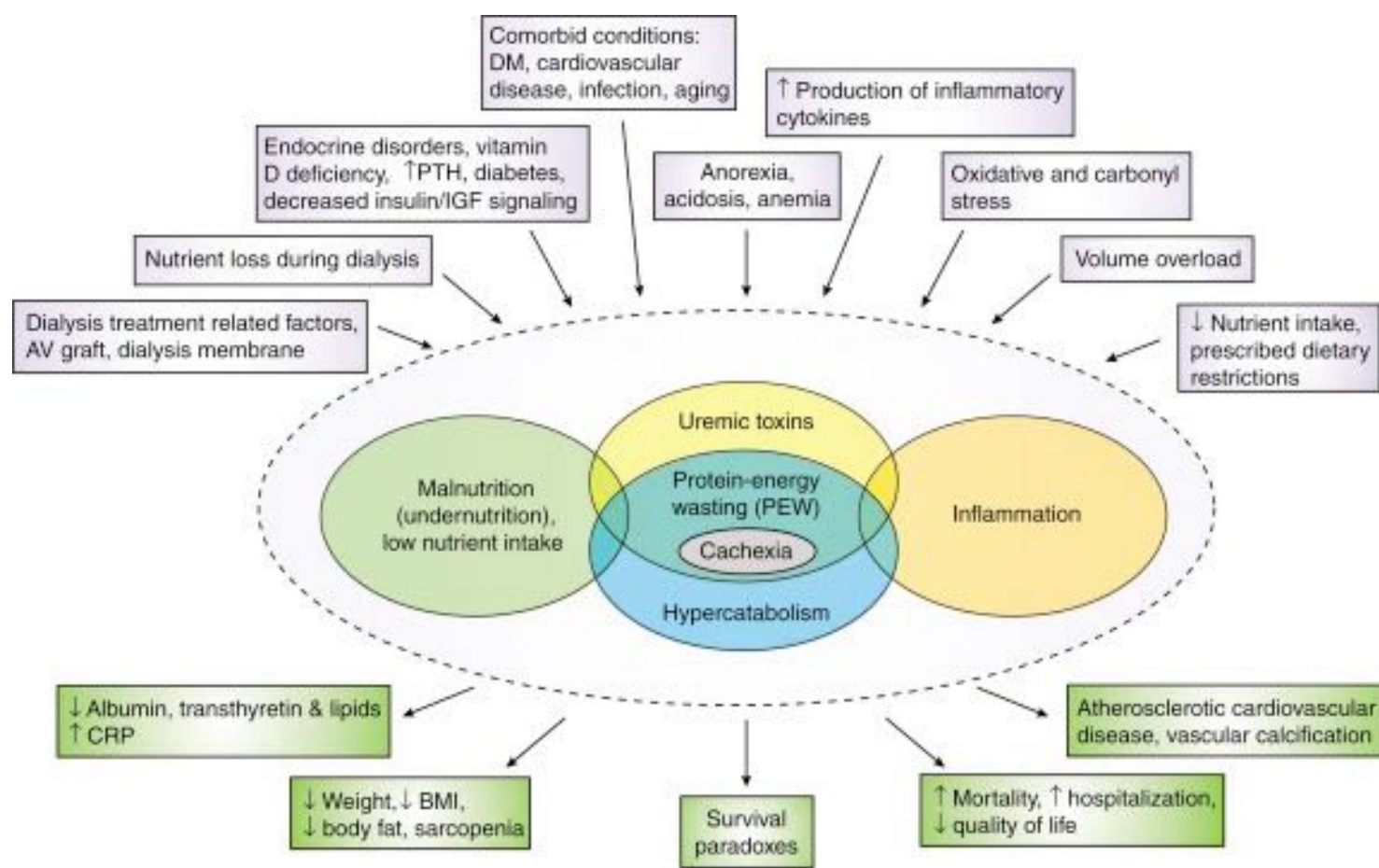
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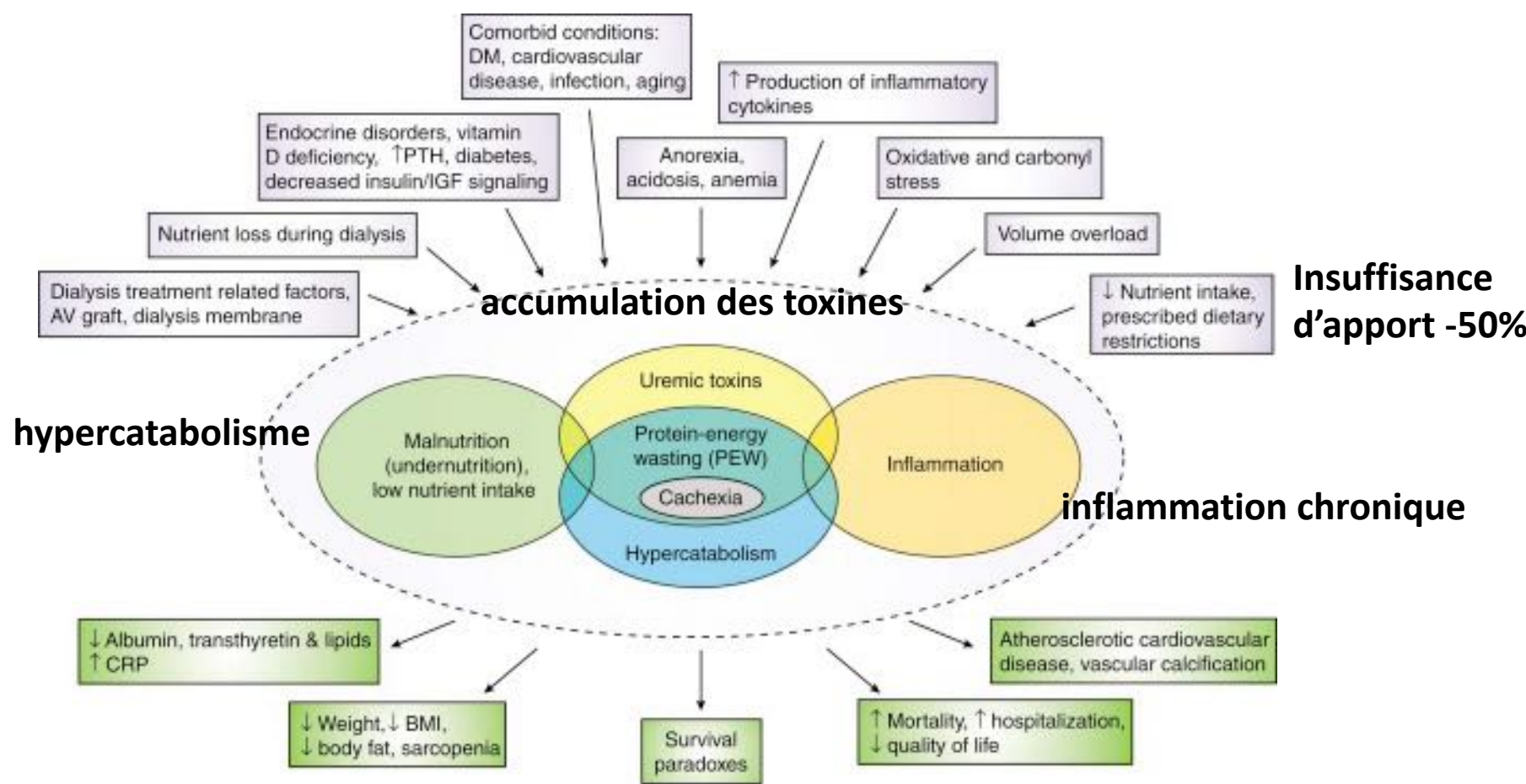
- **FRÉQUENT**
- **GRAVE**



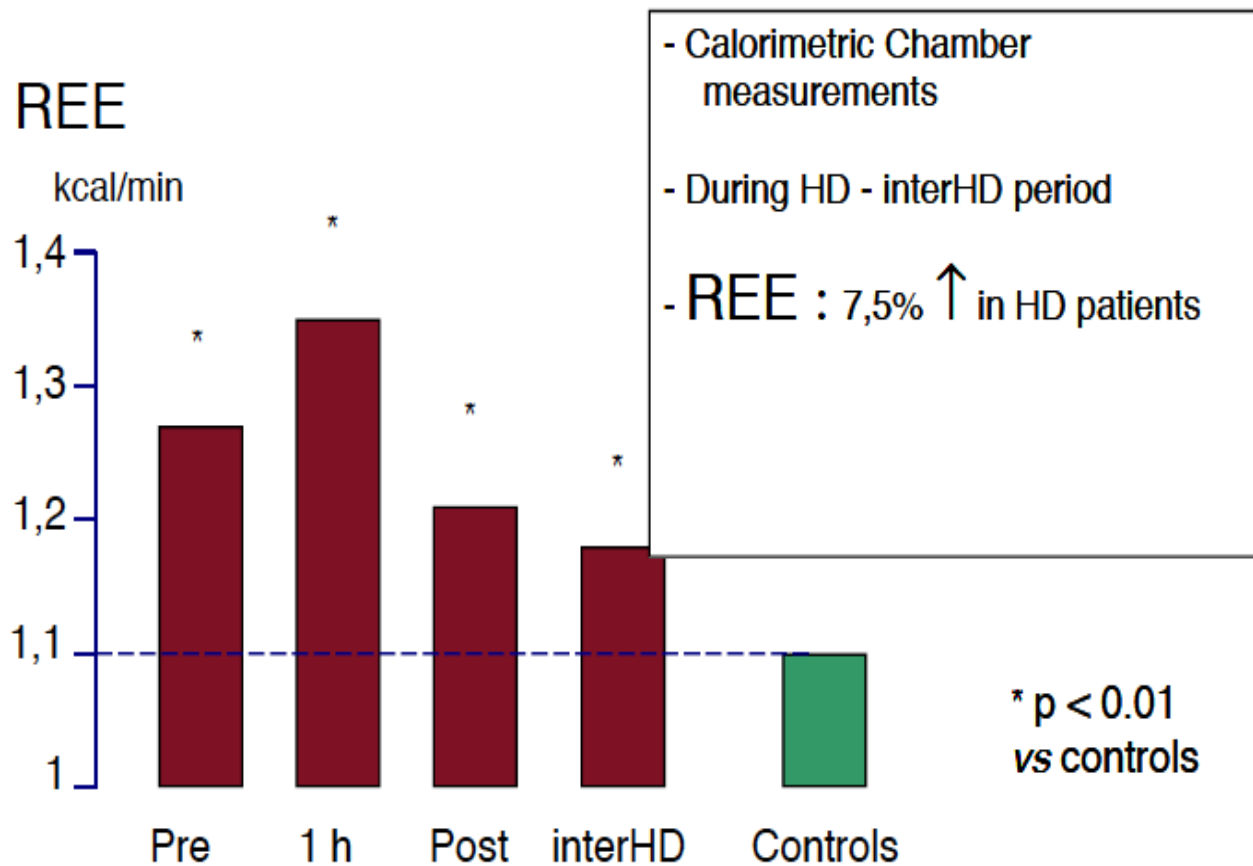
Dénutrition en dialyse: Causes



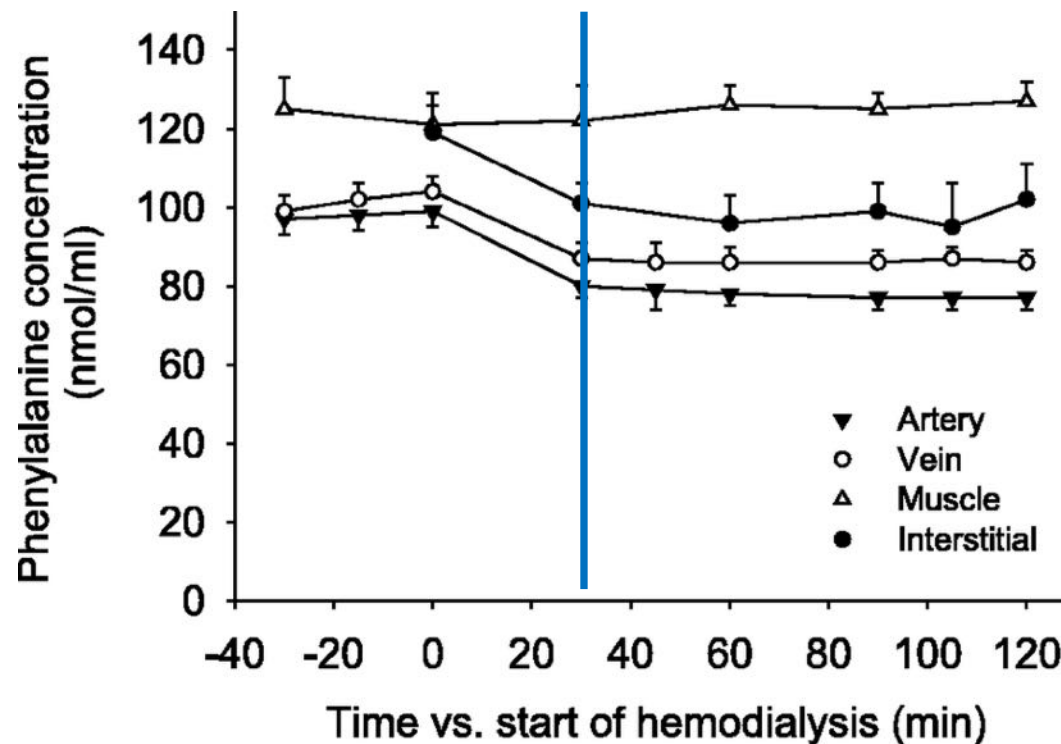
Dénutrition en dialyse: Causes



Dénutrition en Dialyse: Hypercatabolisme



Anomalies métaboliques induites par la dialyse



Muscle protein catabolism occurs in order to maintain plasma amino acids

Børshiem E et al, AJP 2005



L'Appétit est perturbé en dialyse

	Very Good (83)	Good (124)	Fair (101)	Poor (23)	<i>p</i>
Mortalité	5 %	2%	11%	30%	<i><0.001</i>
Age (ans)	54	56	53	58	<i>NS</i>
Ancien. Dial	39 m	34 m	38 m	28 m	<i>NS</i>
nPNA	1.09	1.05	1.02	0.95	<i>0.04</i>
S Albumine	39	38	38	37	<i>0.08</i>
S Prealbumin	0.3	0.28	0.28	0.25	<i>0.10</i>
CrP (mg/l)	5	5	7	10	<i>0.005</i>
SF 36	60	56	48	40	<i><0.001</i>

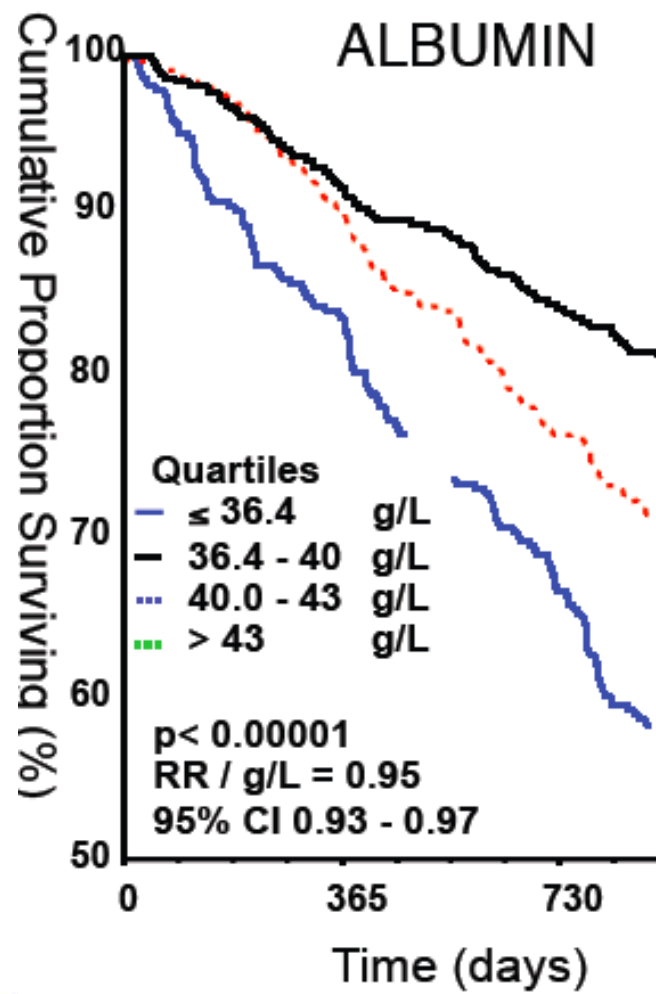


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Dénutrition en Dialyse: Enjeu -> mortalité

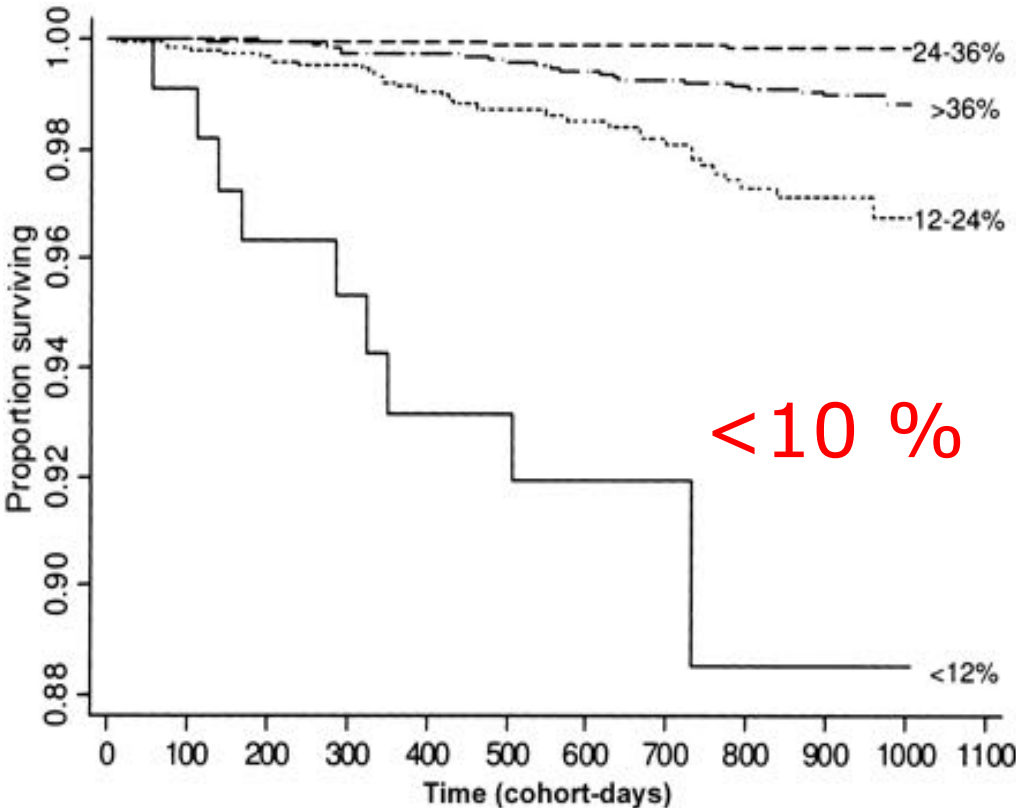


N= 1610
HD
France
Mean follow up: 2.5 years

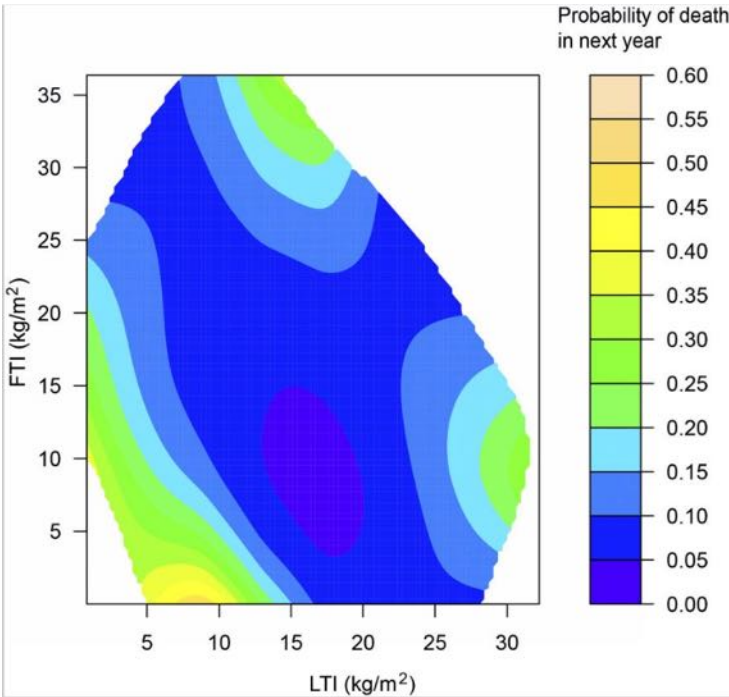


Fat Mass and mortality

535 adult MHD patients,
USA
NIR interactance



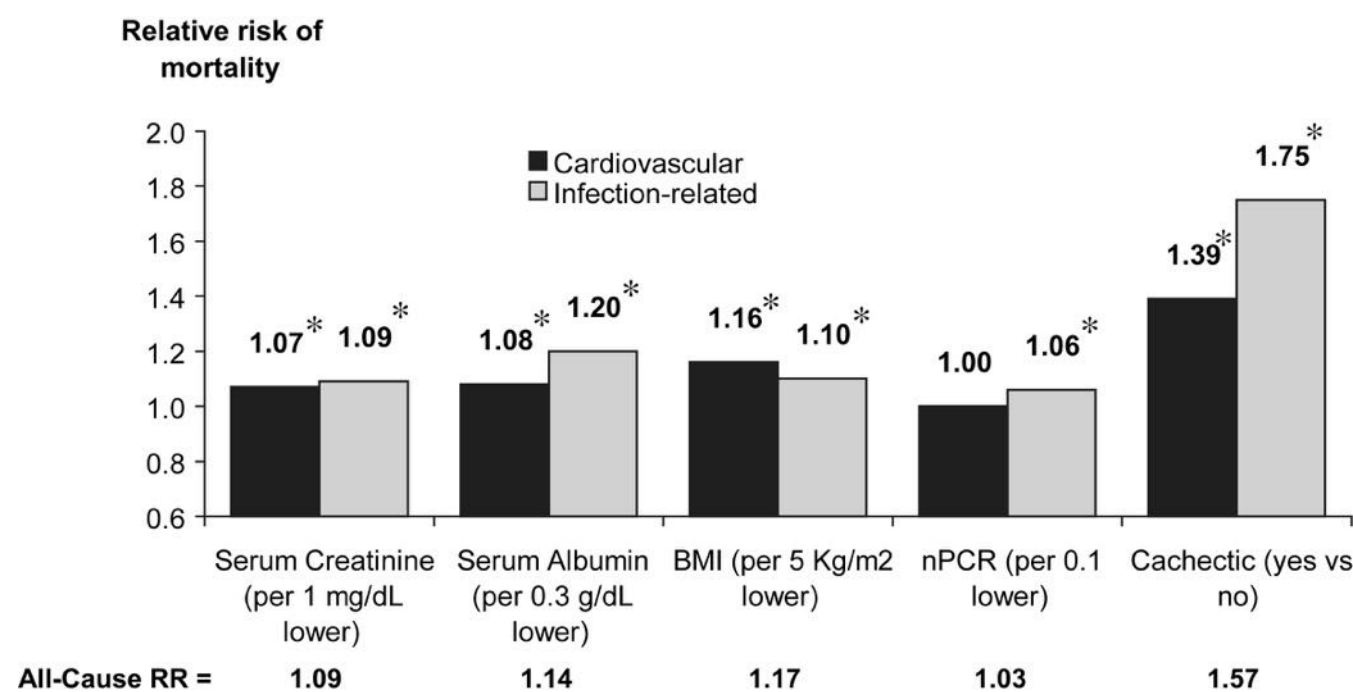
N=37,345
HD
European countries
BIA



Dénutrition en Dialyse: Enjeu -> mortalité



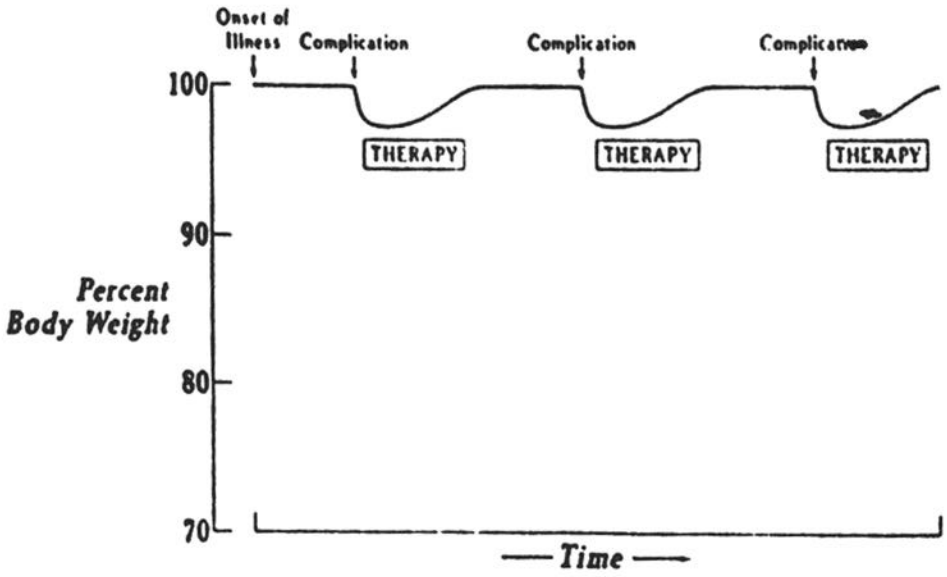
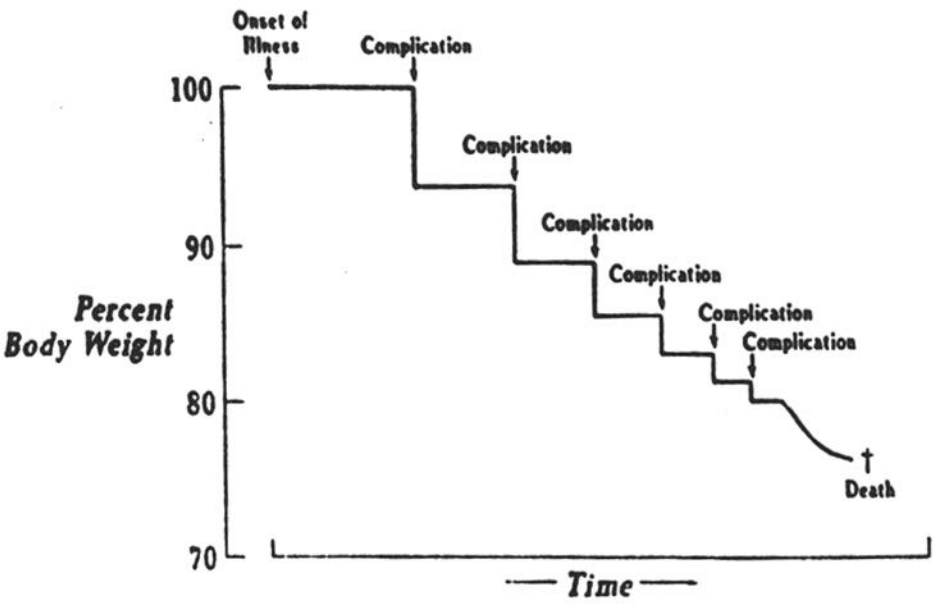
Adjusted relative risks of death due to cardiovascular and infection-related causes associated with nutritional indicators.
N=40,950



Relative risks were adjusted for age, sex, race, vintage, 14 summary comorbidities, neutrophil/lymphocyte ratio and dialysis by catheter.
* $p < 0.01$.



BW, chronic disease and mortality



2-Diagnostic



Protein Energy Wasting - 2008

Gr 1: Biology

Gr 2: Body Mass **Importance du bilan diététique +++**

Gr 3: Muscle

Gr 4: Dietary intake

At least one criterion in 3 of the 4 groups



Diagnostic - Protein Energy Wasting – 2008

Gr 1: Biology

Gr 2: Body Mass

Gr 3: Muscle

Gr 4: Dietary intake

Gr 1

- Serum Albumin < 38 g/l (BCG)
- Serum prealbumin < 300 mg/l
- Serum cholesterol < 1 g/l

Gr 2

- Body Mass Index < 23 (*WHO: 18.5*)
- Weight loss > 5 % (3 months)
- Weight loss > 10 % (6 months)
- Body Fat < 10 %

At least one criterion in 3 of the 4 groups



Protein Energy Wasting – 2008

Gr 1: Biology

Gr 2: Body Mass

Gr 3: Muscle

Gr 4: Dietary intake

Gr 3

- Loss of muscle mass > 5% (3 months)
- Loss of muscle mass > 10% (6 months)
- Reduced MAMC (>10% below 50th percentile)
- Predialysis S Creatinine (K-DOQIs)
- Creatinine kinetics (Garred et al.)

Gr 4

- Unintentional Dietary Protein Intake
< 0.8 g/kg BW/day for 2 months
- Unintentional Dietary Energy Intake
< 25 kcal/kg BW/day for 2 months

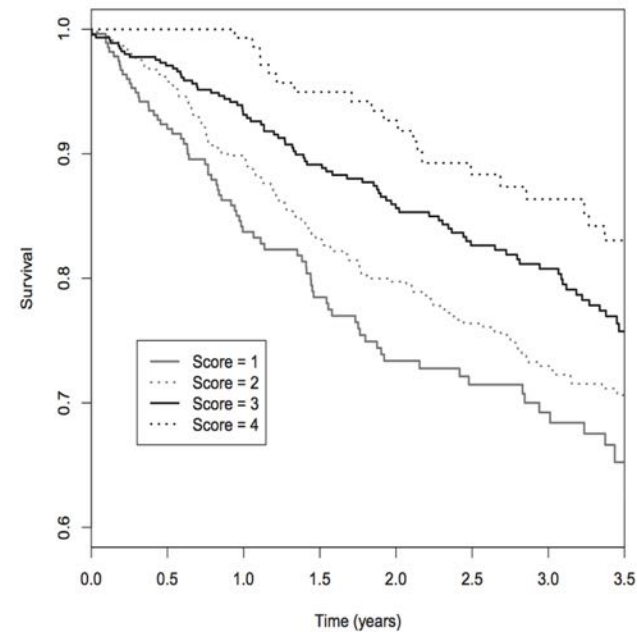
At least one criterion in 3 of the 4 groups



Diagnostic: PEW score and survival



- S Alb < 38 g/l
- nPNA < 0.8 g/kg/d
- BMI < 23 kg/m²
- S Creat/BSA < 340 $\mu\text{mol/l.m}^2$



Moreau-Gaudry et al. *J Renal Nutr* 2014;24:395-400



L'évaluation subjective globale (SGA) en 7 points est un outil valide pour l'évaluation du statut nutritionnel (KDOQI)

1.5 Statements on Composite Nutritional Indices

7-Point Subjective Global Assessment (SGA)

1.5.1 In adults with CKD 5D, we recommend the use of the 7-point Subjective Global Assessment as a valid and reliable tool for assessing nutritional status (1B).

Malnutrition Inflammation Score (MIS)

1.5.2 In adults with CKD on MHD or posttransplantation, Malnutrition Inflammation Score may be used to assess nutritional status (2C).

SUBJECTIVE GLOBAL ASSESSMENT RATING FORM		
Patient Name:	ID #:	Date:
HISTORY		
WEIGHT/WEIGHT CHANGE: <i>(Included in K/DOQI SGA)</i>		Rate 1-7
1. Baseline Wt: _____ (Dry weight from 6 months ago)		
Current Wt: _____ (Dry weight today)		
Actual Wt loss/past 6 mo: _____ % loss: _____ (actual loss from baseline or last SGA)		
2. Weight change over past two weeks: _____ No change _____ Increase _____ Decrease		
DIETARY INTAKE No Change _____ (Adequate) No Change _____ (Inadequate)		
1. Change: Sub optimal Intake: _____ Protein _____ Kcal _____ Duration _____		
Full Liquid: _____ Hypocaloric Liquid _____ Starvation _____		
GASTROINTESTINAL SYMPTOMS <i>(Included in K/DOQI SGA-anorexia or causes of anorexia)</i>		
Symptom:	Frequency:	Duration:
_____ None	_____	_____
_____ Anorexia	_____	_____
_____ Nausea	_____	_____
_____ Vomiting	_____	_____
_____ Diarrhea	_____	_____
Never, daily, 2-3 times/wk, 1-2 times/wk > 2 weeks, < 2 weeks		
FUNCTIONAL CAPACITY		
Description	Duration:	
_____ No Dysfunction	_____	
_____ Change in function	_____	
_____ Difficulty with ambulation	_____	
_____ Difficulty with activity (Patient specific "normal")	_____	
_____ Light activity	_____	
_____ Bed/chair ridden with little or no activity	_____	
_____ Improvement in function	_____	
DISEASE STATE/COMORBIDITIES AS RELATED TO NUTRITIONAL NEEDS		
Primary Diagnosis _____ Comorbidities _____		
Normal requirements _____ Increased requirements _____ Decreased requirements _____		
Acute Metabolic Stress: _____ None _____ Low _____ Moderate _____ High _____		
PHYSICAL EXAM		
_____ Loss of subcutaneous fat (Below eye, triceps, _____ Some areas _____ All areas		
biceps, chest) <i>(Included in K/DOQI SGA)</i>		
_____ Muscle wasting (Temple, clavicle, scapula, ribs, _____ Some areas _____ All areas		
quadriceps, calf, knee, interosseous <i>(Included in K/DOQI SGA)</i>		
_____ Edema (Related to undernutrition/use to evaluate weight change)		
OVERALL SGA RATING		
Very mild risk to well-nourished=6 or 7 most categories or significant, continued improvement.		
Mild-moderate = 3, 4, or 5 ratings. No clear sign of normal status or severe malnutrition.		
Severely Malnourished = 1 or 2 ratings in most categories/significant physical signs of malnutrition.		

Ikizler et al, AJKD, 2020



Mesure de la composition corporelle

- Mesure du périmètre musculaire brachial (MMAC)
→ renseigne sur masse musculaire du patient
- Mesure des plis cutanés (pas du côté de la FAV!)
→ renseigne sur la masse grasse du patient
- La bioimpédancemétrie (BIA) tend à renseigner les mêmes données avec une meilleure précision



Depistage +++++++

Routine Nutrition Screening

1.0.1 In adults with CKD 3-5D or posttransplantation, it is reasonable to consider routine nutrition screening at least biannually with the intent of identifying those at risk of protein-energy wasting (*OPINION*).

Evaluation 2 fois par an au minimum

1.0.2 In adults with CKD 3-5D or posttransplantation, there is limited evidence to suggest the use of one tool over others for identifying those at risk of protein-energy wasting (PEW) (2D).

Utilisation d'outils "facile" à mettre en place

1.0.3 In adults with CKD 3-5D or posttransplantation, it is reasonable that a registered dietitian nutritionist (RDN) or an international equivalent conduct a comprehensive nutrition assessment (including but not limited to appetite, history of dietary intake, body weight and body mass index, biochemical data, anthropometric measurements, and nutrition-focused physical findings) at least within the first 90 days of starting dialysis, annually, or when indicated by nutrition screening or provider referral (*OPINION*).

Evaluation surtout dans les 3 mois après mise en dialyse

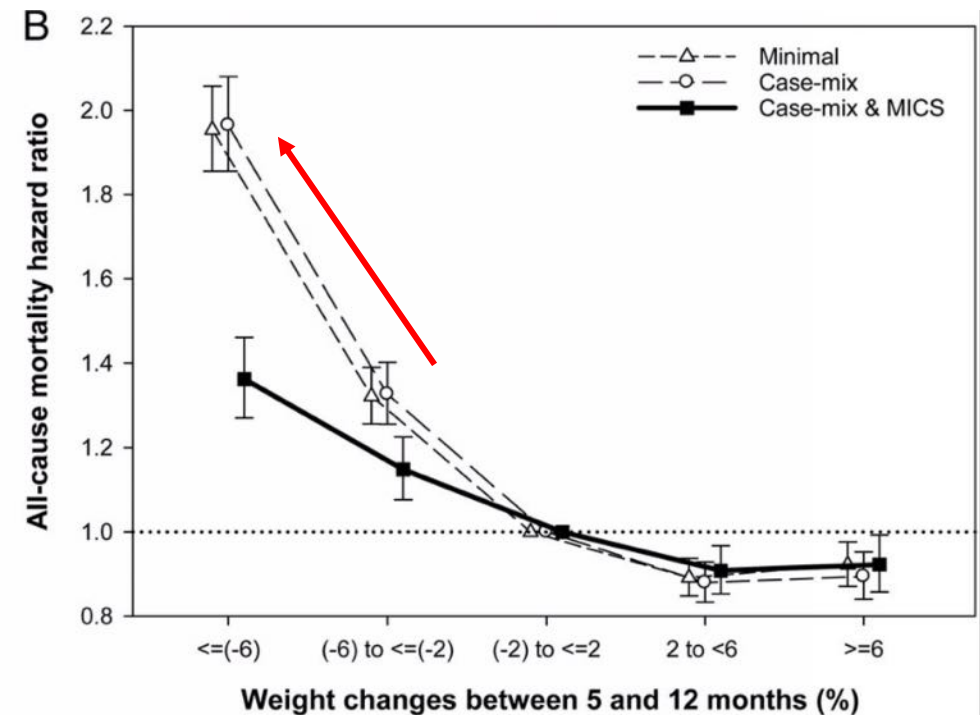
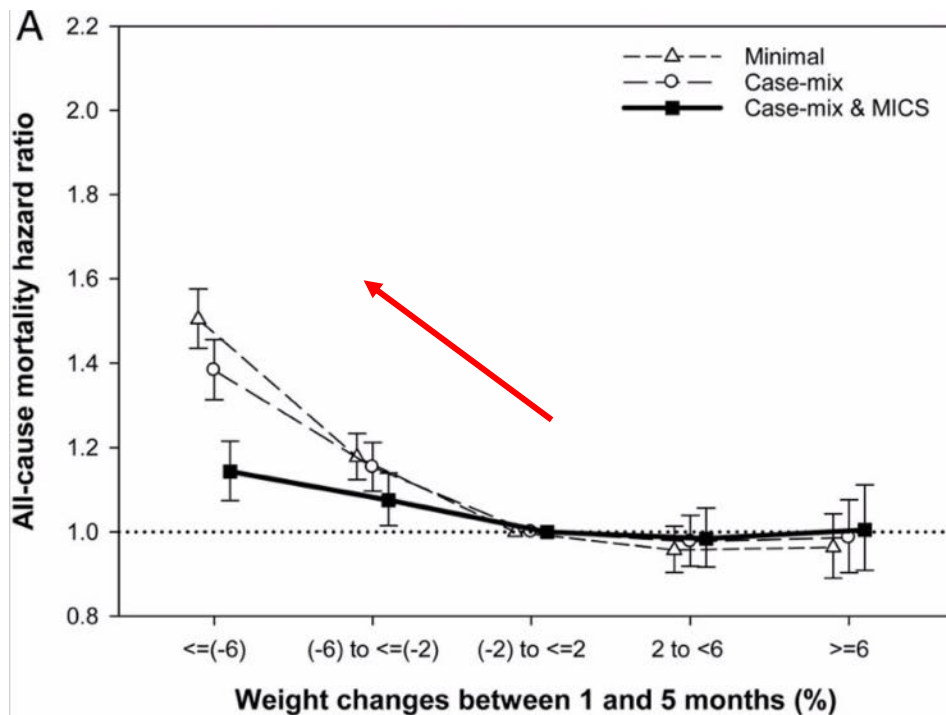


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Weight loss and mortality

N= 58 106
US cohort
Incident HD patients



Depistage

BMI pas un marqueur suffisant mais très utile -> BMI bas en dialyse = surmortalité et BMI haut = protecteur

- 1.1.5 In adults with CKD 1-5D or posttransplantation who are clinically stable, it is reasonable to measure body weight and BMI and to monitor for changes in body weight/BMI and body composition as needed (*OPINION*):
- At least monthly in MHD and PD patients

- BMI une fois par mois

- 1.2.1 In adults with CKD 1-5D or posttransplantation, biomarkers such as normalized protein catabolic rate (nPCR), serum albumin, and/or serum prealbumin (if available) may be considered complementary tools to assess nutritional status. However, they should not be interpreted in isolation to assess nutritional status as they are influenced by non-nutritional factors (*OPINION*).

- Albumine +++
- Préalbumine
- nPCR



3-Interventions



Diagramme de prise en charge

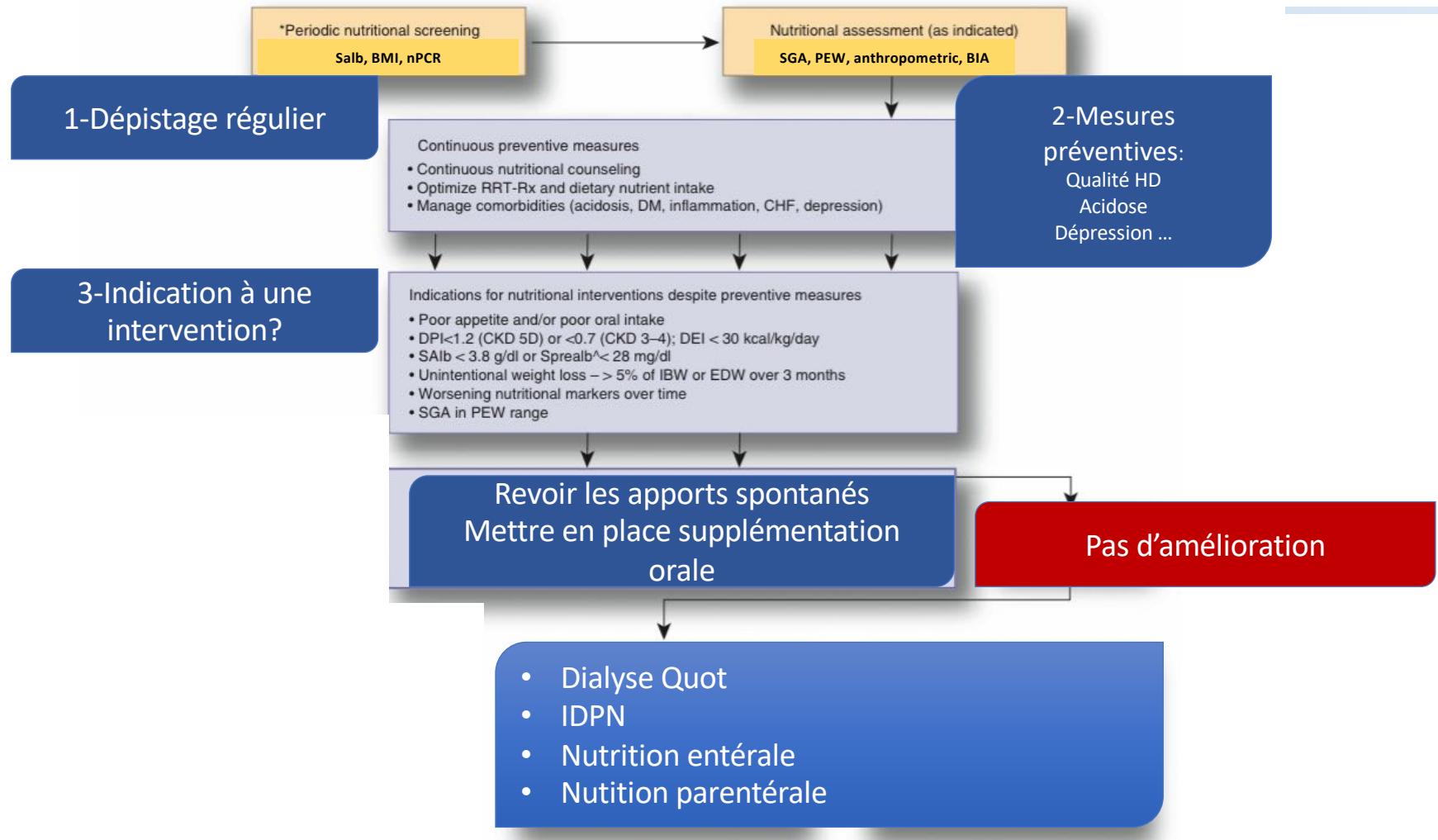
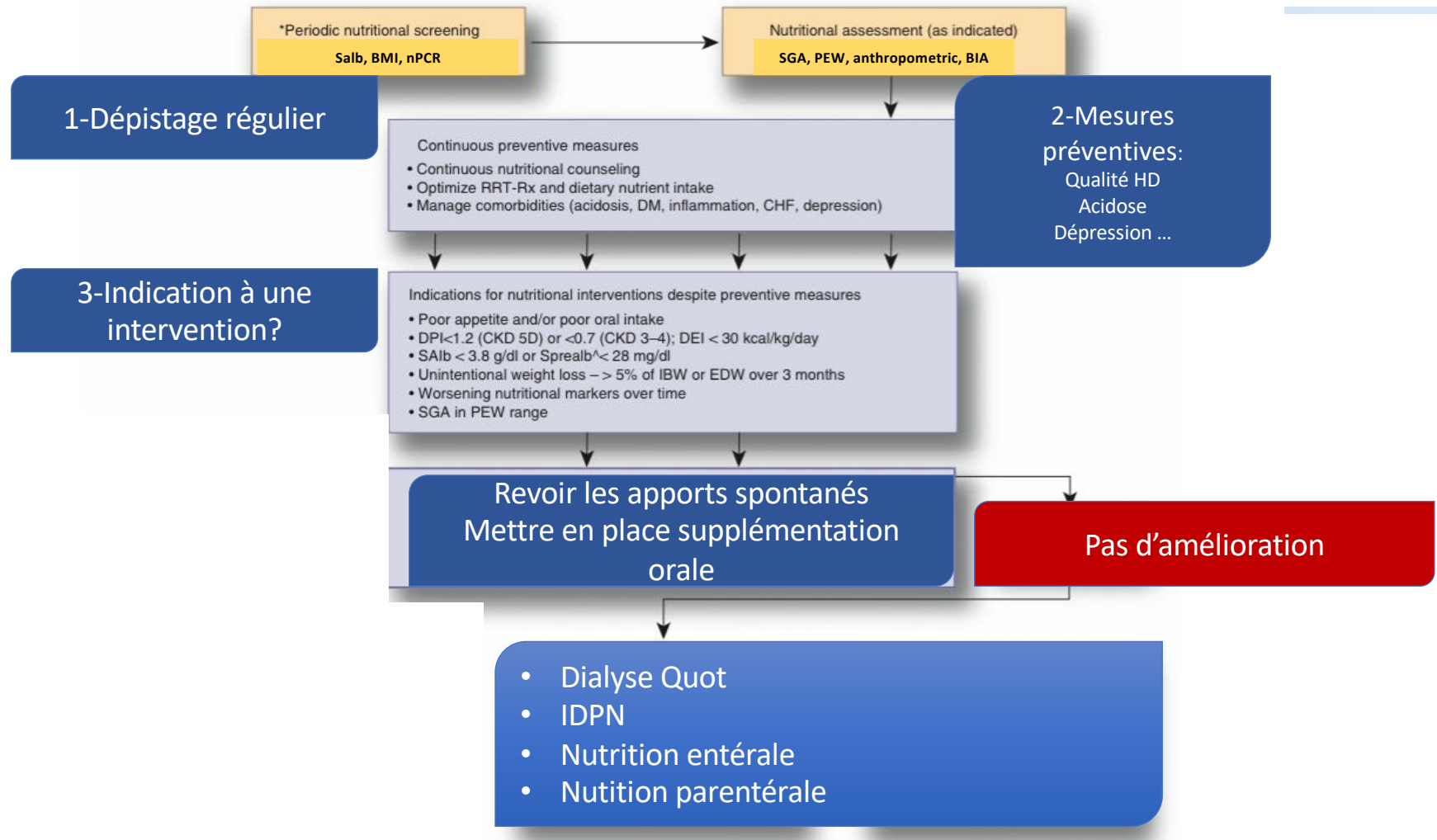


Diagramme de prise en charge



Execices, androgène, IGF1,...



En premier lieu: traitement des comorbidités

- Dialyse adéquate et suffisante ($Kt/V > 1.2$)
- Correction de l'acidose : bicarbonate > 22 mol/l avant EER
- Correction des sources inflammatoires traitables
 - Diabète
 - Social
- Documenter la dénutrition : évaluation biologique, anthropométrique et anamnétique concordante



Un combat du quotidien



Alimentation pendant la dialyse

Table 2. Practical Guidelines for Eating During Treatment

Practical Guidelines for Eating During Treatment
Provision of meals during hemodialysis treatment should be the default practice and standard-of-care in all dialysis centers. • Hemodialysis patients should consider eating during treatment if they ○ are hemodynamically stable ○ have no contraindication for eating during hemodialysis (see in the following) Patient characteristics • Patients should consider eating outside of treatment if they ○ have low blood pressure during treatment ○ frequently coughing or risk of choking ○ undergoing current bout of diarrhea that can be aggravated by eating ○ prone to stomach pain, indigestion, nausea, or vomiting during treatment ○ diagnosed autonomic dysfunction that may be precipitated by eating Position • Patients should be encouraged to eat in an upright position Food characteristics • Risk of hypotension may be greater with ○ larger meals ○ high amounts of simple carbohydrates ○ hot as opposed to cold food ○ lack of caffeinated items such as coffee • Patients should be encouraged to choose foods ○ high in protein and low in phosphorus (phosphorus to protein ration <15 mg/g) ○ fit within the renal diet ○ do not increase choking risk ○ do not increase thirst ○ do not need to be stored, chilled, or prepared in-center ○ can be eaten with 1 hand ○ will not make a mess ○ do not have a strong odor • Patients should be prepared to take phosphorus binder with food • Patients should strive to avoid large variations in intake from treatment to treatment

- Hémodynamique stable

- Repas plutôt froid, petit volume
- Riche en caféine
- Riche en protéines
- Facile à manger à 1 main ,...



Sujet d'actualité

Qualité

La suspension des repas par crainte du coronavirus pose question en dialyse

22/04/20 - 12h28



Dans deux saisines, l'une auprès de la HAS et l'autre du CCNE, l'association Renaloo réclame des éclaircissements scientifiques et éthiques sur les raisons de l'arrêt de toute nourriture en hémodialyse. Un véritable "fardeau" pour les patients.

Pour aller plus loin, nos abonnés ont également un lien direct vers :

[Le courrier de saisine de la HAS](#)

[Le courrier de saisine du CCNE](#)

[La recommandation de la SFNDT](#)



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Quel type de supplémentation en premier lieu ?



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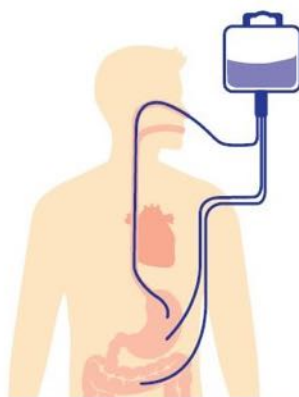
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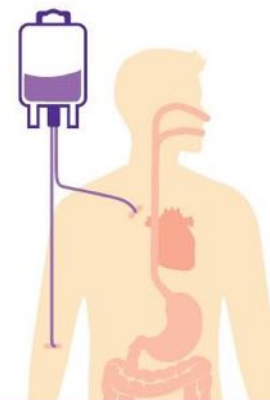
Quel type de supplémentation en premier lieu ?



COMPLÉMENTS NUTRITIONNELS ORAUX



NUTRITION ENTÉRALE



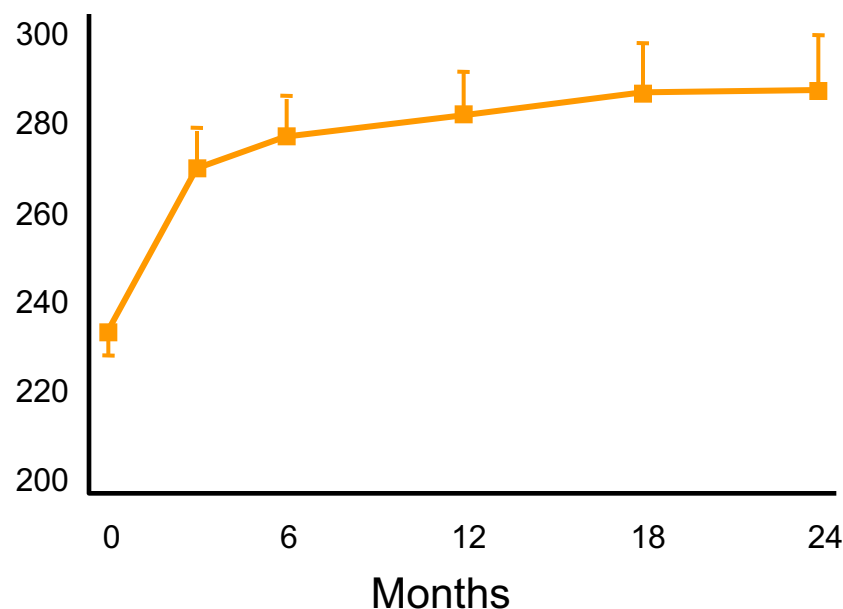
NUTRITION PARENTÉRALE

Ou SURVEILLANCE/REEVALUATION DANS 3 MOIS

Serum Prealbumin response to renutrition

FineS study, oral $\pm$ IDPN support in malnourished MHD pts

Serum prealbumin
mg/L



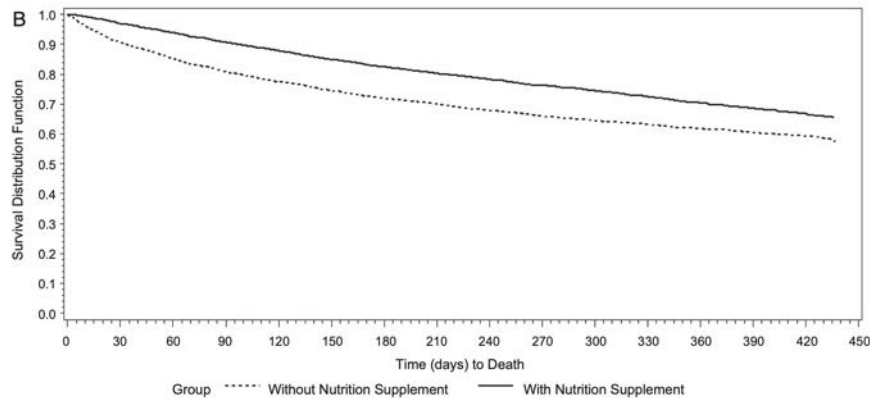
+ 55 mg/l
+ 23%



CNO chez le patient dialysé dénutri

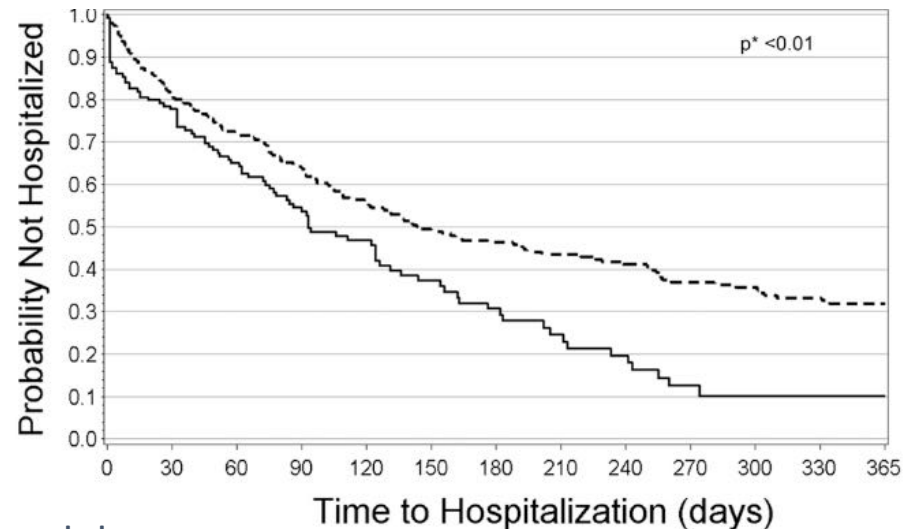
Outcomes Associated With Intradialytic Oral Nutritional Supplements in Patients Undergoing Maintenance Hemodialysis: A Quality Improvement Report

Eduardo Lacson Jr, MD, MPH, Weiling Wang, MS,
Barbara Zebrowski, MS, RD, CSR, LDN, Rebecca Wingard, RN, MSN, CNN, and
Raymond M. Hakim, MD, PhD



Association between Oral Nutritional Supplementation and Clinical Outcomes among Patients with ESRD

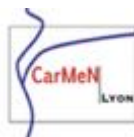
Christine Cheu,* Jeffrey Pearson,* Claudia Dahlerus,* Brett Lantz,* Tania Chowdhury,* Peter F. Sauer,† Robert E. Farrell,†
Friedrich K. Port,* and Sylvia P.B. Ramirez*



- ▶ Les CNO sont efficaces pendant la séance et en dehors
 - ▶ Lacson: 5227 paires appariées
 - ▶ Cheu: 276 vs 194 patients HD, Albumine < 38 g/L



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Arbre décisionnel

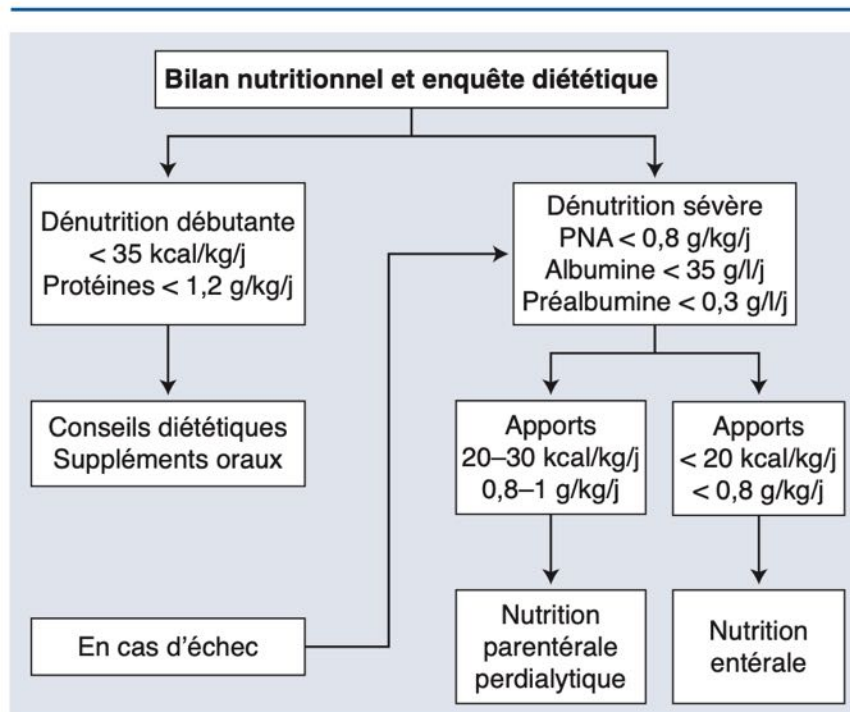


Figure 1. Arbre décisionnel. Traitement de la dénutrition en hémodialyse. PNA: *protein nitrogen appearance* ou évaluation des apports en protéines.

Guideline 4: Nutritional Supplementation

4.1 Statements on Oral, Enteral, and Intradialytic Parenteral Nutrition Supplementation

Oral Protein-Energy Supplementation

4.1.1 In adults with **CKD 3-5D (2D)** or posttransplantation (*OPINION*) at risk of or with protein-energy wasting, we suggest a minimum of a 3-month trial of oral nutritional supplements to improve nutritional status if dietary counseling alone does not achieve sufficient energy and protein intake to meet nutritional requirements.

Enteral Nutrition Supplementation

4.1.2 In adults with **CKD 1-5D**, with chronically inadequate intake and whose protein and energy requirements cannot be attained by dietary counseling and oral nutritional supplements, it is reasonable to consider a trial of enteral tube feeding (*OPINION*).

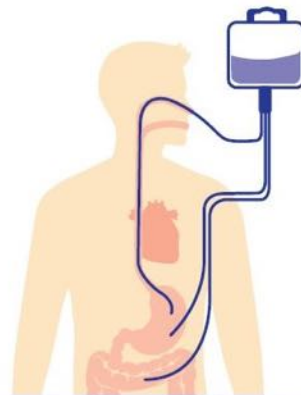
Total Parenteral Nutrition (TPN) and Intradialytic Parenteral Nutrition (IDPN) Protein-Energy Supplementation

4.1.3 In adults with **CKD** with protein-energy wasting, we suggest a trial of TPN for **CKD 1-5** patients (2C) and IDPN for **CKD 5D** on MHD patients (2C), to improve and maintain nutritional status if nutritional requirements cannot be met with existing oral and enteral intake.

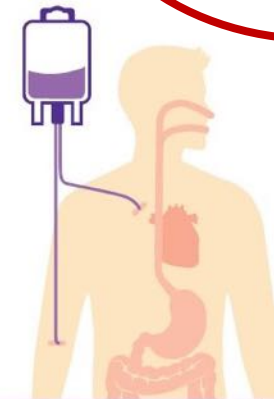
Quel type d'intervention ?



COMPLÉMENTS NUTRITIONNELS ORAUX



NUTRITION ENTÉRALE



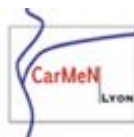
NUTRITION PARENTÉRALE

**Nutrition
PARENTÉRALE
PER DIALYTIQUE**

Ou SURVEILLANCE/REEVALUATION DANS 3 MOIS



Hospices Civils de Lyon



Quelle est votre conduite à tenir ?

Traitement de la dénutrition: NPPD

Facilement disponible et aisé à mettre en route

- Accès parentéral simple et risque infectieux minime
- Mais attention ! NPPD est recommandée seulement si le patient a un apport énergétique $> 20 \text{ kcal/kg/j}$ et protéique $> 0.8 \text{ gr/kg/j}$
- Sinon l'alimentation parentérale doit être perfusée sur les 24 heures.



Traitement de la dénutrition : SNG/PEG

- Utilisation de **produits spécifiques** pour l'insuffisance rénale (rapport volume /teneur en énergie et protéines; pauvre en potassium et phosphate)
- + : maintien de la voie physiologique entérale, coût faible, efficacité
- - : maintien de la SNG, ressenti du patient, risque d'aspiration
- Peu d'études dans la littérature...

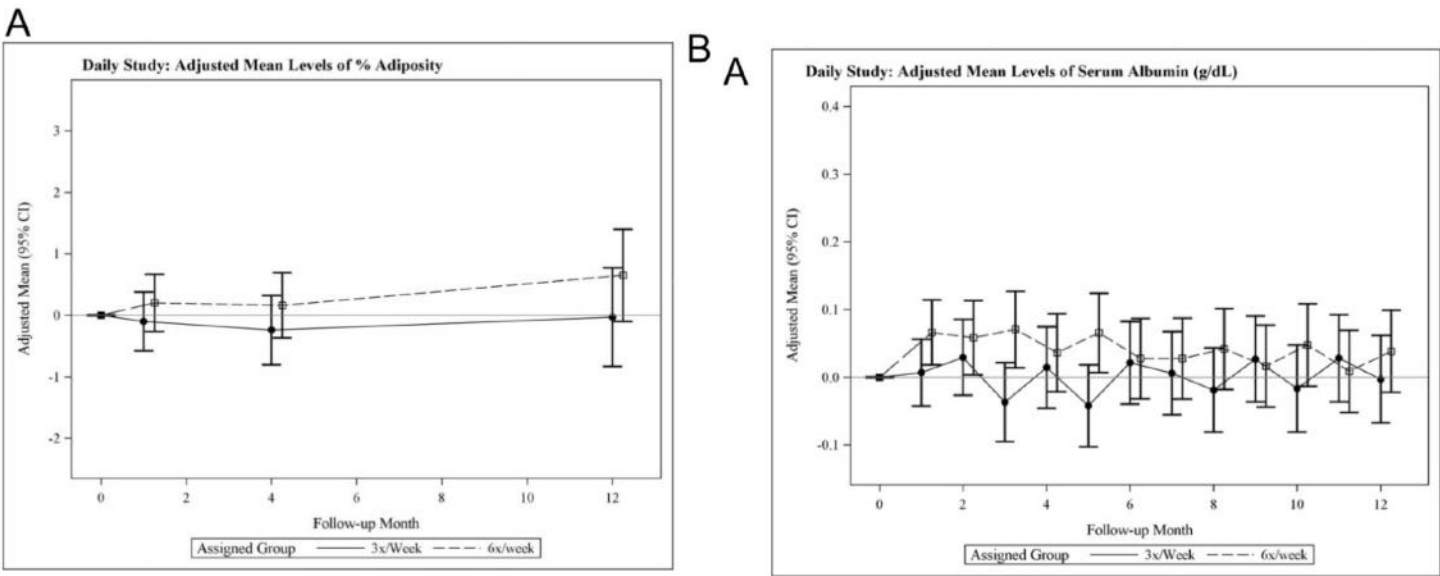


Dialyse Quotidienne

ORIGINAL ARTICLE

In-Center Hemodialysis Six Times per Week versus Three Times per Week

The FHN Trial Group*

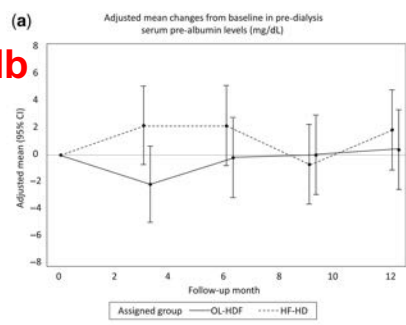


N=245, HD

HDF

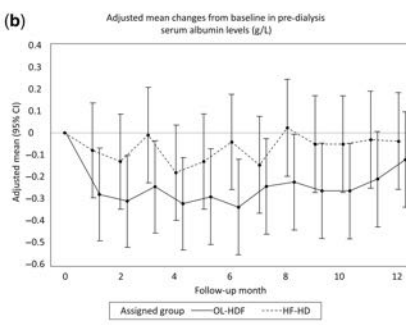
S preAlb

NS



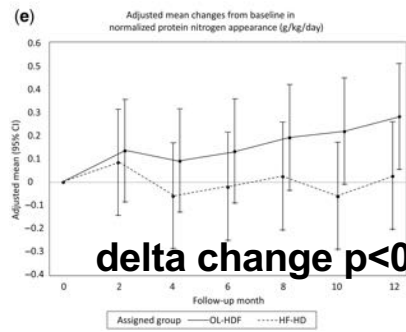
SAIb

NS



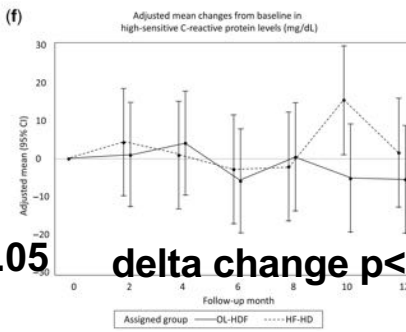
nPNA

delta change $p < 0.05$



Hs-CrP

delta change $p < 0.05$



Potassium et phosphore ...



Fruits et légumes et HD

How is fruit and vegetable intake related to mortality in hemodialysis patients?



Methods and Cohort



Food frequency questionnaire



Europe and South America HD patients



N = 8078

Median follow-up 2.7 years

Findings



4%

consumed recommended ≥ 4 servings daily



Servings

8

per week

4-14

interquartile range



Deaths

2082

all-cause

954

cardiovascular

Adjusted HR of all-cause mortality by servings

REFERENCE

LOWEST TERTILE
(0-5.5, median 2)

0.90

(95% CI 0.81-1.00)

MIDDLE TERTILE
(5.6-10, median 8)

0.80

(95% CI 0.71-0.91)

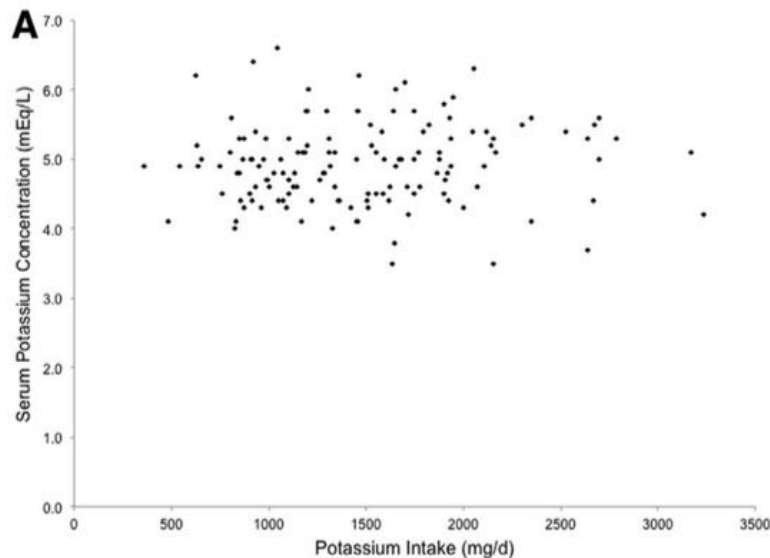
HIGHEST TERTILE
(>10 , median 17)

Conclusions Fruit and vegetable intake in the hemodialysis population is low and a higher consumption is associated with lower all-cause and non-cardiovascular death.

Valeria Saglimbene, Germaine Wong, Marinella Ruospo, Suetonia Palmer, et al. **Fruit And Vegetable Intake and Mortality In Adults Undergoing Maintenance Hemodialysis.** CJASN doi: 10.2215/CJN.08580718.
Visual Abstract by Michelle Lim, MBChB



Relation apport alimentaire et potassium



N=140 , patients en HD

Pas d'études qui compare le potassium sanguin chez patients IRC avec alimentation où source potassium est d'origine végétale ou animale

St-Jules et al, J Renal Nutr 2016

Potassium et alimentation

Table 4. Logistic regression models for hyperkalemia in HD (N = 117)

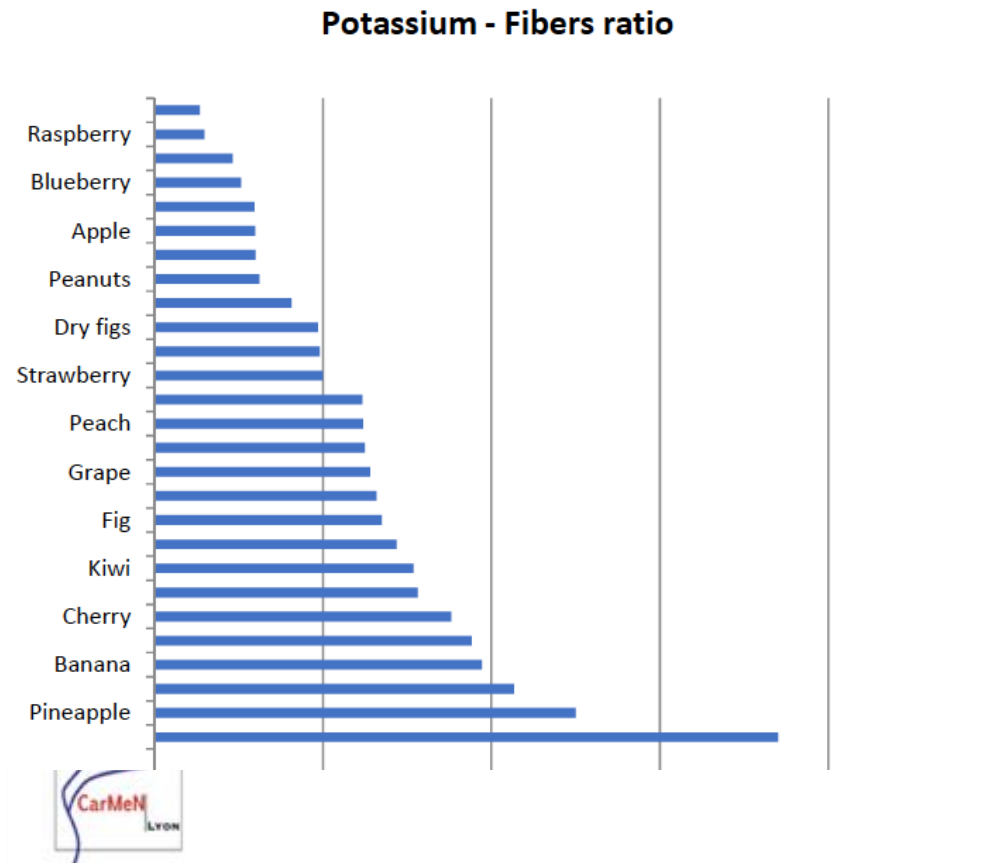
Parameters	OR (95% CI)	P-value
Model 1		
Dietary potassium (g/1000 kcal/day)	1.09 (0.28–4.33)	0.89
DM	4.25 (1.32–13.7)	0.02
Dialysis vintage (months)	0.97 (0.88–1.06)	0.53
BUN (mg/dL)	1.02 (0.99–1.04)	0.18
Serum creatinine (mg/dL)	1.53 (1.26–1.87)	<0.01
MIS >6	1.43 (0.48–4.26)	0.52
BMI (kg/m ²)	1.03 (0.91–1.33)	0.61
Serum bicarbonate (mEq/L)	1.14 (0.98–1.33)	0.09
Model 2		
Dietary potassium (g/1000kcal/day)	1.17 (0.30–4.60)	0.83
DM	4.22 (1.31–13.6)	0.02
Dialysis vintage (months)	0.98 (0.89–1.07)	0.64
BUN (mg/dL)	1.02 (0.99–1.04)	0.22
Serum creatinine (mg/dL)	1.50 (1.24–1.81)	<0.01
MIS >6	1.48 (0.51–4.34)	0.47
BMI (kg/m ²)	1.04 (0.91–1.18)	0.57
Serum bicarbonate <22 mEq/L	0.61 (0.21–1.74)	0.35

Models adjusted by gender



Potassium

Regarder le rapport Potassium/Fibres-> +++++ rapport potassium/fibre faible



Phosphore

aliment	apports par portion	%apports par portion
Salami de dinde cuit (portion : 55g)	146mg	24%
Saucisson de foie (portion : 55g)	127mg	18%
Jambon de dinde (portion : 55g)	126mg	18%
Saucisse de dinde (portion : 55g)	111mg	16%
Pâté de foie (portion : 55g)	110mg	16%
Chipolata (portion : 55g)	101mg	14%
Roulé de dinde (portion : 55g)	101mg	14%
Saucisse fumée (portion : 55g)	94mg	13%
Pain de viande au poivre (portion : 55g)	94mg	13%
Boeuf froid tranché (fin) (portion : 55g)	92mg	13%
Braunschweiger (portion : 55g)	92mg	13%
Saucisse fumée (porc) (portion : 55g)	89mg	13%
Saucisse fumée (boeuf) (portion : 55g)	88mg	13%
Blanc de dinde rôtie (portion : 55g)	87mg	12%
Jambon haché (portion : 55g)	86mg	12%
Jambon tranché (portion : 55g)	84mg	12%
Chorizo (portion : 55g)	83mg	12%
Saucisse de veau (portion : 55g)	83mg	12%
Saucisse bratwurst (portion : 55g)	82mg	12%
Saucisse de boeuf (portion : 55g)	78mg	11%
Saucisson de bologne (portion : 55g)	76mg	11%
Saucisson de bière (porc et boeuf) (portion : 55g)	74mg	11%
Saucisson de bologne (dinde) (portion : 55g)	72mg	10%
Salami sec (portion : 30g)	69mg	10%
Saucisse fumée (porc et boeuf) (portion : 55g)	67mg	10%
Roulé de poulet (portion : 55g)	67mg	10%
Salami de boeuf cuit (portion : 55g)	62mg	9%
Cervelas (portion : 55g)	61mg	9%
Saucisse porc et boeuf (portion : 55g)	59mg	8%
Saucisse fumée (poulet) (portion : 55g)	59mg	8%
Saucisson de bière (portion : 55g)	57mg	8%
Saucisse knackwurst (portion : 55g)	54mg	8%
Saucisse de bière (boeuf) (portion : 55g)	53mg	8%
Mortadelle (portion : 55g)	53mg	8%
Saucisse de bologne (boeuf) (portion : 55g)	48mg	7%
Rôti de viande froid (portion : 55g)	47mg	7%
Salami de boeuf sec (portion : 30g)	43mg	6%
Fromage de tête (portion : 55g)	32mg	5%
Boudin (portion : 55g)	12mg	2%

146 mg à 12 mg par portion de 55g



Conclusion

Dénutrition = fréquente

- ☐ Critères diagnostiques
- ☐ Causes à rechercher
- ☐ Anorexie: vérifier les apports spontanés/mois
- ☐ Ne pas réduire les protéines pour contrôler le phosphore
- ☐ Toujours préférer soutien oral/enteral en 1^{er}
- ☐ Ne pas réduire les fibres pour contrôler le potassium

